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Advanced

**Advisory Committee on  
Advanced Television (ATV) Service**

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Doc. No. \_\_\_\_\_

Date \_\_\_\_\_

Dear Technical Subgroup,

July 22, 1993

Attached is a draft of an agenda for the Technical Subgroup meeting of August 11, 1993 for your review and comment.

Note that the main purpose of this meeting is to receive progress reports from the Expert Groups & their associated GA Specialist Groups.

It is expected that we will be able to finalize a schedule to complete the Alliance System Specifications including the approval of the subsystem test plans being reviewed now. At this time the dates of future Technical Subgroup meetings can also be set. At the present time it is foreseen that we will meet on September 14, 1993 to certify the Audio, Transport, and Scanning Format/Compression Specifications.

Please give me any comments you may have.

Thanks,

*J. A. Flaherty*  
J. A. Flaherty  
Co chairman

ACATS Technical Subgroup

**Distribution:**

Members - Messrs. Lynn Claudy, Birney Dayton, Alex Felker, Branko Gerovac, Michael Haley, John Henderson, Robert Hopkins, Renville McMann, Mark Richer, Robert Sanderson, Craig Tanner, Victor Tawil, George Vradenburg III;

Ex-Officio Members - Messrs. Robert Eckart, Peter Fannon, James Gaspar, Reggie Gilliam, George Hanover, Paul Hearty, Brian James, Robert Niles, Richard Prodan, Charles Rhodes, Peter Smith, Lawrence Thorpe;

Official Observers - Ms. Carol Darling, & Messrs. Ken Davies, Keiichi Kubota, Howard Miller, Victor Rojas, George Waters.

CC: Messrs. Carlo Basile, R. L. Cerbone, Jae Lim, Wayne Luplow, Robert Rast, Richard E. Wiley

**DRAFT AGENDA****FCC Advisory Committee on Advanced Television Service****Technical Sub-Group Meeting****August 11, 1993**

<u>TIME:</u>	<u>SUBJECT:</u>	<u>PARTICIPANTS:</u>
08:30 AM - 09:00 AM	Introduction.	Chairman Flaherty
09:00 AM - 09:45 AM	Report of Expert Group & GA Specialist Group on Scanning Formats & Compression	Mr. Hopkins Mr. Keeler Mr. Woo Paik
09:45 AM - 10:15 AM	Discussion	
10:15 AM - 10:30 AM	Coffee Break	
10:30 AM - 11:15 AM	Report of Expert Group & GA Specialist Group on Audio Systems	Mr. Gaspar Mr. Eilers
11:15 AM - 11:45 AM	Discussion	
11:45 AM - 12:30 PM	Report of Expert Group & GA Specialist Group on Transport	Mr. Tanner Mr. T. Smith
12:30 PM - 01:30 PM	Lunch Break	
01:30 PM - 02:15 PM	Report of Joint expert Group & Specialist Group on Interoperability	Mr. Haley Mr. Hopkins Mr. Reitmeier Mr. Netravalli
02:15 PM - 02:45 PM	Discussion	
02:45 PM - 03:30 PM	Report of Expert Group & GA Specialist Group on Transmission	Mr. Henderson Mr. Bryan
03:30 PM - 03:45 PM	Coffee Break	

03:45 PM - 04:15 PM	Discussion
04:15 PM - 05:00 PM	Approval of overall Schedule, Work Plans, Subsystem testing, etc.
05:00 PM - 05:15 PM	Other business & date of next meeting
05:15 PM	Adjournment.



# PUBLIC NOTICE

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News media information 202/632-5050. Recorded listing of releases and texts 202/632-0002.

January 14, 1993

## FCC AWARDS NEW DUPLICATING SERVICES CONTRACT TO INTERNATIONAL TRANSCRIPTION SERVICE, INC (ITS)

Effective January 25, 1993, International Transcription Service, Inc., will begin performing under FCC Contract No. 90-3 for duplicating services.

Item costs for the new contract include:

Public use coin-operated copies (8.5 x 11)	\$	.25 per page
Public use metered copies (8.5 x 11)	\$	.07 per page
Contractor operated copies (8.5 x 11)	\$	.07 per page
Contractor operated copies (over 8.5 x 14)	\$	.25 per page
Special Filing surcharge copies	\$	.02 per page
Special Filing surcharge copies	\$	10.00 per diskette
Microfiche to paper copies	\$	.30 per page
Microfiche to microfiche copies	\$	5.00 per fiche
Diskette to diskette copies	\$	5.00 per diskette
RIPS copies	\$	.10 per page
Search and Replace fee	\$	15.00 per hour
Record Retrieve and Replace fee	\$	10.00 per order
Same Day expedited service fee	\$	30.00 per order
24 Hour expedited service fee	\$	20.00 per order
48 Hour expedited service fee	\$	15.00 per order
Telephone Directory (picked-up)	\$	3.00 each
Telephone Directory (mailed)	\$	4.00 each
FAX Service	\$	2.00 per page
Digest subscription service	\$	.05 per page

Highlights of interest to the public include:

New Equipment. The new contract requires that ITS, Inc., install all new equipment at the start of performance of the base contract period. Copiers manufactured by Xerox will be installed and serviced by factory trained personnel. ITS personnel will be providing free instruction on the proper use of the copier. Contact Wilbur Thomas, General Manager, ITS, Inc., if a demo is needed for Xerox equipment.

ITS, Inc. will occupy an office at 1919 M Street., N.W., room 246, as well as offices at 2100 M Street, N.W., Suite 140, Washington, DC 20037, telephone (202) 857-3800. In Gettysburg, PA the location is 1270 Fairfield Road, Gettysburg PA, 17325, telephone (717) 337-1433.

For additional information you may contact Judy Boley at (202) 632-7513.

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**CHAIRMAN'S REPORT**  
**Audio Experts Group of the**  
**FCC ACATS Technical Subgroup**

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Due to the scheduled August 31 decision date for choosing the Grand Alliance ATV audio system, work has been proceeding at a very rapid pace. The following is a summary of the telecons that have been held since the last Technical Subgroup meeting:

**Telecon July 2, 1993**

A discussion on cascading Dolby Matrix Surround with 5.1 channel coding algorithms prompted a request that the audio advocates provide a "how-it-works" system description to the Audio Technical Subgroup.

Several issues on how subjective testing would be conducted were discussed and Doug Lankford of Thompson introduced a draft test plan.

The Audio Expert Group did not participate in this telecon.

**Telecon July 13, 1993**

There was a discussion of the audio system description documents to be supplied by the audio advocates and what should be included in the description. It was noted that none of the submitted documents contained everything that had been requested and August 16 was identified as the completion date.

The audio Test Materials that were produced for FCC ACATS testing had been requested by the Grand Alliance for the "Bake Off" tests and final approval from Dick Wiley was expected very soon.

The Tests were scheduled to begin the week of July 25 at Lucasfilm in California. The Test Tapes, made with the use of Dolby's ADAT equipment, were to be completed July 23 at Zenith.

It was decided that the Dolby system would be tested at two different bit rates -- 320 Kb/s and 384 Kb/s.

Cascaded coding algorithms (i.e., Dolby Matrix surround) would not be tested but would be treated as a paper study.

Three series of tests would be conducted -- Quality, Stereo Mixdown and impairment.

### **Telecon July 23, 1993**

Zenith reported that the Alesis test tapes for the Philips system and Dolby system were completed and that the MIT system tapes were scheduled to be completed this evening. Arrangements were being made to have the Alesis equipment at Skywalker Ranch on Tuesday morning and the test tapes should arrive that day also.

The schedule for testing was defined:

Monday, July 25	Coordination & logistical checks
Tuesday, July 26	Equipment setup & adjustment
Wednesday, July 27	Pilot testing
Thursday, July 28	Expert listening tests
Friday, July 29	Continue testing if necessary

Jim Gaspar agreed to act as the test director.

Bronwen Jones would prepare the commentary/score sheets in time for the pilot testing on Wednesday. The test plan would be revised as necessary depending on the results of the pilot tests.

### **TESTING**

Despite the extremely tight agenda and numerous opportunities for disaster, the testing was successfully completed on schedule.

#### **Of Note:**

Despite all rituals and incantations attempted, an unexorcisable ground loop hum persisted between the Alesis machines and the control amplifier. Isolation transformers on each of the six used analog outputs of the D/A Alesis machine in conjunction with making it the center of a ground star was the only thing that worked.

The pilot testing on Wednesday proved invaluable in fine tuning the test plan and provided time estimates and optimal session lengths.

The entire quality test series was completed on Thursday much to everyone's delight. It was not until the free-form listening session that followed that it began to become apparent that something was wrong. It was discovered that the entire test series had been run with the reference compared to itself, not the reference compared to the trial tapes. During the testing the Alesis machines, on occasion, displayed some bizarre behavior that probably should have triggered suspicion, but otherwise the control panel indicated that it was switching between the synchronized tape machines even though it wasn't. Curiously, earlier in the day one of the expert listeners commented that it would be nice to have a test of the experts -- he got it-- but I don't think he appreciated the fact that he was part of the unscheduled double blind test. It is quite understandable how differences between "trials" could be heard since the facility was so finely tuned that even a lateral head position change of about five inches produced noticeable audio imaging changes due to phasing.

The impairment tests were completed on Thursday and the quality tests were rerun on Friday. An abbreviated version of the stereo mix-down tests were performed Friday because of time constraints.

The data from the "Bake Off" is in the process of being "boiled down" and should be available by the middle of August. The identities of the tested systems will not be revealed, even to the analyzers, until after the analysis is complete.

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# **Grand Alliance**

## **Summary of Specialist Group Activities**

- **Subjective Testing**
- **Receiver Implementation Costs**

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# **Receiver Implementation Costs**

- **Block Diagrams Used**
- **Analyzed to the Gate-Count and Memory Level**
- **Three Modes**
  - **5.1 Loudspeaker Reproduction**
  - **2 Loudspeaker Reproduction**
  - **1 Loudspeaker Reproduction**

# **Subjective Testing Activities**

- **Acquisition of Surround Sound Test Materials**
- **Tape Recording of Encoded/Decoded Cascade**
  - **Original, MIT, Dolby, Philips**
  - **Done at Zenith, July 22-23**
  - **Test Modes**
    - » **6 Channel Umimpaired and Impaired**
    - » **2 Channel Umimpaired and Impaired**
- **Expert Listeners Acquired**

# **Activities to be Completed**

- **Analysis of Subjective Test Results**
- **Summary of Receiver IC Cost Studies**
- **Comparison of Advocate Systems to ATSC T3/186 Recommendation**

# **Subjective Testing Activities (cont.)**

- **Material Presented in Following Order:**
  - Reference
  - Randomized Unknown
- **Identity of Unknown Concealed from Listeners and Testers**
- **Listening Tests Conducted at Lucasfilm, July 26-30**
- **Analysis of Results In-Process**

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August 11, 1993

TRANSPORT

# **SCOPE OF TRANSPORT LAYER**

- **Multiplex Constituents of Program**
  - Video, Audio and Data
- **Regenerate Decoder System Timing**
- **Deliver Presentation Time Stamps  
to Elementary Stream Decoders**

# **OBJECTIVES**

- **Flexibility of Services**
- **Accommodate Prioritization Usage**
- **Support Conditional Access**
- **Interoperability with Alternate Media  
(e.g. ATM Networks)**
- **Low Overhead**

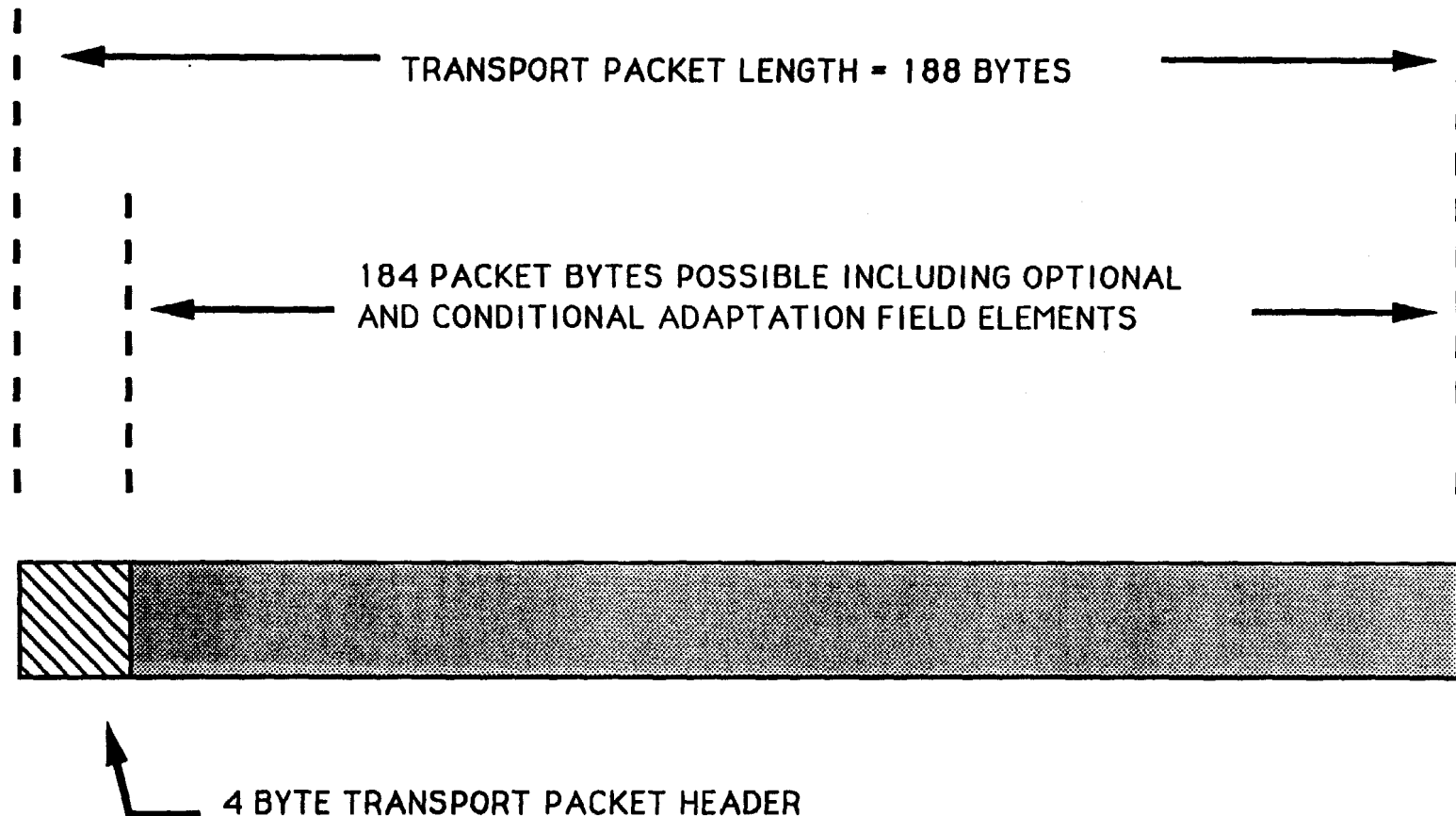
# **STATUS UPDATE**

- **MPEG2 Systems Draft as Reference Document**
- **Specialist Group Submission to MPEG**
  - preference for 188 bytes/packet
  - complexity of PES layer
- **Favorable response from MPEG on both issues**
- **Specialist Group finalizing constraints on MPEG-2 document (GA profile)**

# **ADDITIONAL DETAILS**

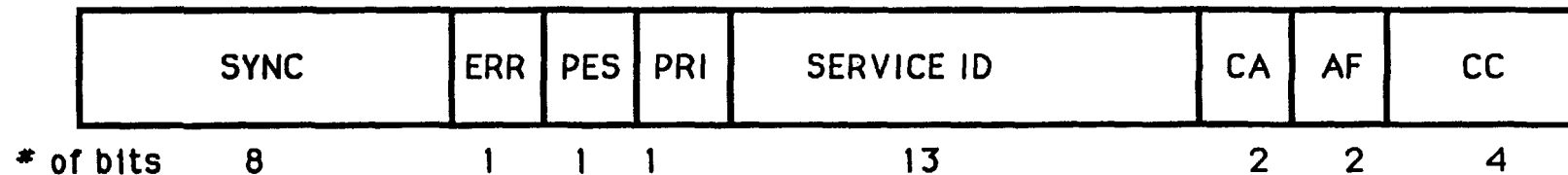
- **Prioritization Hooks Exist but No Plans for Video Graceful Degradation**
- **PES layer will carry time stamps**
- **Dialogue Established with ATV Closed Captioning Group**
- **Some Details Await Selection Decision for Audio and Transmission**

# TRANSPORT PACKET STRUCTURE



# DETAILS OF PACKET HEADER

## FOUR BYTE TRANSPORT PACKET HEADER



ERR - Transport\_Packet\_error\_indicator

PES - PES\_packet\_start\_indicator

PRI - Transport\_priority

CA - transport scrambling\_control

AF - adaptation\_field\_control

CC - continuity\_counter

# **NEEDS IDENTIFIED**

- **Concept of Standards and Recommended Practices**
- **Standards Insure that Capabilities Exist**
- **Recommended Practices Cover Implementation of Features for Encoders**
- **Document Will be Provided which Clearly Explain Transport Concepts**

# **OPEN ISSUES**

- **Details for Support of Local Program Insertion and "Live Edits"**
- **Relation of Audio, Video and System Clocks**
- **Program Guide Implementation**

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J. Flaherty, Co-chairman ACATS Technical Subgroup

I. Dorros, Co-chairman ACATS Technical Subgroup

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Subject: Report of Joint Experts Group on Interoperability

I will not be able to attend the August 11 meeting of the ACATS Technical Subgroup. Please accept this as a status report for the Joint Experts Group on Interoperability.

Membership for the Joint Experts Group on Interoperability is currently as follows:

R. Sanderson	(Chairman)
M. Liebhold	(Vice-Chairman)
B. Gerovac	
M. Haley	
R. Keeler	(GA)
G. Reitmeyer	(GA)
R. Hopkins	(Ex-Officio)
C. Tanner	(Ex-Officio)

We may selectively make one or two additions to this list as we get under way.

We plan a two phase process to evaluate the Grand Alliance proposal from the view of Interoperability for Alternative Media and Applications. The plan takes the ACATS PS-WP/4 Interoperability study and report as both a template for the present study and also as a starting point for the study.

Expected actions are as follows for the two phases leading to a final report and conclusions by mid-October 1993:

**Phase I (Refinement of Interoperability Questions)**

Three day meeting generally structured as follows:

- (1) Review of previous PS-WP/4 Interoperability study
  - Structured questions, reference architectures posed to the proponents.
  - Findings, conclusions, recommendations
- (2) Opportunity for new inputs and/or refinements of the Interoperability questions, etc. (Some contend that all segments of the public interest have not been heard — this will give opportunity to receive that input for consideration in Phase II)